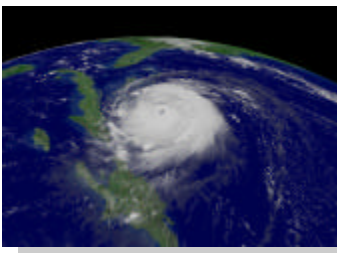


### Overview

Due to its geographical location in the Caribbean Region, the Dominican Republic is constantly exposed to natural disasters of a meteorological nature. Damages associated to hurricane activity have been tremendous over the years, leaving so many consequences behind, that overcoming those damages have demanded outstanding efforts from the Dominican authorities, as well as from the international community. This report provides information on the impact of hurricanes on the Dominican Republic, with emphasis on the building and construction sector; approaches towards relief and reconstruction are described.



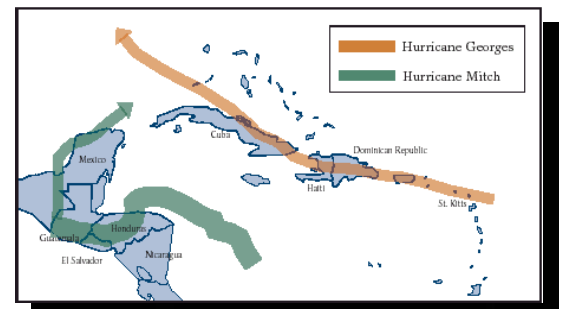
Hurricanes are severe tropical storms whose winds exceed 74 mph. Hurricanes originate over the tropical and subtropical North Atlantic and North Pacific oceans, where there is high humidity and light wind. These conditions prevail mostly in the summer and early fall. Since hurricanes can take days or even weeks to form, time is usually available for preventive or protective measures. From space, hurricanes look like giant pinwheels, their winds circulating around an eye that is between 5 and 25 miles in diameter. The eye remains calm with light winds and often a clear sky. Hurricanes may move as fast as 50 mph. Each year, the hurricane season begins officially on June 1 and runs for six months, ending on November 30.



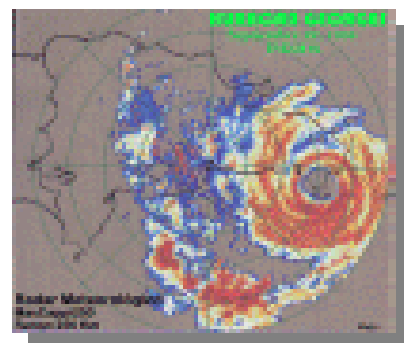
Numerous studies prove that the path of most hurricanes in the Caribbean Region is close to the Dominican Republic. The studies further prove that the marine currents, once the hurricanes formed in the north-tropical Atlantic Ocean near the African coasts, will push them toward the Antilles, making the Dominican Republic vulnerable of receiving, on average, every other year a hurricane of medium to high intensity. According to metrological studies, every ten years no less than 4 hurricanes have hit the Dominican Republic, and in some cases like in the 1960s, eight hurricanes hit the country.

During the 20<sup>th</sup> century six hurricanes severely impacted the country:

1. **Saint Zenon** – September 3<sup>d</sup>, 1930: 4,500 deaths, over 20,000 injured, and direct losses for more that US\$15 million.
2. **Flora**- October, 1963: 400 deaths, direct losses over US\$60 million.
3. **Ines**- September 29, 1966: 70 deaths, and at least US\$10 million in material losses and damages in the country's infrastructure.
4. **Beulah**- September 11, 1967, that severely affected Pedernales (southern province) and caused serious damages to the agriculture in the whole southern region of the country.
5. **David**- August 31, 1979: over 2,000 deaths and material damages estimated in more than US\$829 million.
6. **Georges**- September 22, 1998: 235 deaths, and direct and indirect damages to the country for more than US\$2.1 billion.



The 2004 hurricane season was one of the most active in recent years for the Dominican Republic as well as several other countries in the region. Constant rains caused enormous floods in the country for the past twelve months; it is noteworthy the infamous flood of Jimani, (border community), which was washed out due to the rains that tropical Hurricane Jeanne (Category I) brought to the region in September, 2004.



On September 17, 2004 Hurricane Jeanne's impact on the Dominican Republic left damages of US\$270 million, according to a preliminary estimate from the Economic Commission of Latin America and the Caribbean (ECLAC), equivalent to 1.7% of the 2003 GDP. Fifty-five percent accounted for direct losses, especially in assets and agricultural production, while the remaining 45% was indirect losses to several sectors, increased operating costs or reduced income in services such as water, electricity, transportation and tourism.

To reconstruct the Jimani's community, the Dominican Republic received funds from several different international agencies including the US Agency for International Development (USAID), the United Nations, the European Union, and the Red Cross, among others. The National Institute of Housing (INVI in Spanish) managed the funds and built over 5,000 low cost housing units in Jimani.



Over the years, several national and international organizations have been involved in relief and reconstruction efforts in the Dominican Republic. Financing for reconstruction has been provided by a combination of grants, donations, local and international fund raising activities, loans and Dominican Government resources.

On September 17, the USG declared the Dominican Republic as a disaster area due to the damage caused by Hurricane Jeanne. In response, USAID/OFDA provided \$50,000 to World Vision to purchase and distribute emergency relief supplies, including hygiene kits, mosquito nets, kitchen sets, blankets, bedding, water containers, and plastic sheeting.

#### Accumulated effects of major natural disasters (hurricanes, floods) 2003-2004

	Hurricane Jeanne (September 2004)	Floods and debris (May 2004)	Floods (November 2003)	TOTAL
Population affected				
- Deaths	23	436	10	469
- Missing	4	414	3	421
- Victims	32,554	6,183	63,520	102,257
- Housing destroyed or damaged	5,737	723	4,300	10,760
- Agricultural damages (millions of US\$)	76.3	17.7	31.1	125.1
- Total damages (direct & indirect)	296.4	N/A	42.6	339.0



Learning from past experience, the Dominican Republic authorities implemented in November 2004, a revised Emergency Plan for natural disasters, which includes preventive and reactive actions in the event of hurricanes or other natural disasters. The plan is the responsibility of the National Emergency Committee, comprised by many organizations including the Civil Defense, the Dominican Red Cross, the Dominican Armed Forces, the Electric Power Company, Minister of Public Works, the National Institute of Housing for the reconstruction implications, and the Emergency Operation Center, among others.

The United Nation Office in the Dominican Republic has proposed that the GODR consider undertaking activities in eight sectors to prevent further complications during natural disasters or reconstruction:

SECTORS	INVESTMENT
	(Millions of US\$)
<b>1. Agriculture</b>	53.57
<b>2. Water supply/ Aqueducts</b>	142.85
<b>3. Tourism:</b>	74.29
Waste Water Treatment plant in Bavaro	12.57
Waste Water Treatment plant in Las Terrernas	9.14
Waste Water Treatment plant in Las Galeras	4.57
Aqueduct Bavaro - Punta Cana	32
Aqueduct Las Galeras Galeras	13.71
Master Plan for Ecotourism	2.3
<b>4. Environmental</b>	14.43
Territorial Organization Plan	5.14
Environmental Impact Evaluation	0.36
Environmental Management Enforcement	1.36
Vulnerability to Natural Disasters Study	6.86
Financing	0.71
<b>5. Prevention of Natural Disasters:</b>	71.43
Flood Control at vulnerable areas	
<b>6. Health</b>	2.14
Prevention of transmission diseases	0.51
Food	1.03
Physiological treatment for victims	0.03
Reduction of immune-prevention diseases	0.57
<b>7. Transportation</b>	30.79
Reconstruction of 3 highways	11.03
Construction of Bridges	1.24
Rehabilitation y Reconstruction of Bridges	15.02
Reconstruction of secondary roads	3.5
<b>8. Housing</b>	10.71
Construction y Rebuilding	10.71
<b>TOTAL</b>	<b>400.21</b>

Exchange Rate used: RD\$28 – US\$1





Some of the above recommendations have been accepted and the projects are currently being built. Other recommendations, like the bridges reconstruction are finalized. The others pending remain and offer business opportunities for U.S. companies in the construction and building material sector.



## Summary

The Dominican Chamber of Construction (CADOCOM), along with the Dominican Association of Engineers and Architects (CODIA) are the largest and most important associations in the industry. Both associations promote, develop, and support building activity in the Dominican Republic. They have over a thousand members, including: construction companies, manufacturers of building products, contractors; architectural and engineering firms; building products distributors; and retailers.

### **Camara Dominicana de la Construcción, Inc.**

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Edif. Marcos IV, 2do. piso  
Santo Domingo, Distrito Nacional

Contact: Ing. Diego De Moya C., President  
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### **Colegio Dominicano de Ingenieros, Arquitectos y Agrimensores (CODIA)**

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E-mail: [codiapres@tricom.net.do](mailto:codiapres@tricom.net.do)  
Web Site: [www.codia.org.do](http://www.codia.org.do)

In the event of natural disasters the Civil Defense and the National Emergency the Emergency Operation Center are the organizations in charge of the relief and manage the reconstruction efforts, contact information as follows:

Civil Defense (Defensa Civil) / Emergency Operation Center  
Av. Ortega y Gasset,  
Plaza de la Salud, Edif. Defensa Civil,  
Santo Domingo, D.N.  
Dominican, Republic

Contact: Luis Antonio Luna Paulino  
Tel. (809) 472- 8614  
Fax: (809) 472- 8622  
E-mail: [d.civil@codetel.net.do](mailto:d.civil@codetel.net.do)  
[informacion@defensacivil.gov.do](mailto:informacion@defensacivil.gov.do)  
Web page: <http://www.defensacivil.gov.do/Second.htm>





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**Date of Report:** July, 2005

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